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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,631	11/20/2001	Joseph Ku	10008038-1	8914

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

TON, DAVID

ART UNIT	PAPER NUMBER
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2133

DATE MAILED: 06/15/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

fp4

Office Action Summary

Application

09/988,631

Applicant(s)

KU, JOSEPH

Examiner

David Ton

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-20 is/are allowed.
- 6) ☒ Claim(s) 21, 22, 24 and 25 is/are rejected.
- 7) ☒ Claim(s) 23 and 26 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

1. Claims 1-26 are presented for examination.

Claim Rejections - 35 USC ' 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 21-22 and 24-25 are rejected under 35 U.S.C. § 103 (a) as being unpatentable over Bair et al. (Bair) patent no. 6,065,134, in view of Owen et al. (Owen) patent no. 5,153,880.

4. As to claims 21 and 24, Bair teaches the invention substantially as claimed, including a method to package a system-on-a-chip (SOC) device [ASIC, col. 1 lines 20-41] at a factory, comprising:

Repairing ["repair process", see col. 1 line 66 – col. 2 lines 17] said SOC device, using one or both of redundant rows and columns, prior to packaging said device;

Retesting ["retesting, see col. 1 line 66 – col. 2 line 17] said SOC device; and

Packaging ["then packaged", col. 1 line 66 – col. 2 line 17] said SOC device in response to said SOC device completing said retesting step satisfactorily.

However, Bair does not explicitly teach a field reparable chip including marking usage of all redundant rows and columns.

Owen teaches a field programmable redundancy apparatus for integrated circuit including means for identifying, selecting and determining which of the redundant memory cells are currently in use or not in use [see claims 1-3]. Owen does not explicitly teach marking usage of redundant rows and columns. However, inherently, there must be some identification mark so that the means for identifying taught by Owen can determine which of the redundant memory cells are currently in use or not in use.

It would have been obvious to one of ordinary skill in the Data Processing art at the time of the invention was made to modify the teachings of Bair to produce a field reparable chip including means for identifying, selecting and determining which of the redundant memory cells are currently in use or not in use as taught by Owen. This modification would have been obvious and a person having ordinary skill in the art would have been motivated to do so because it would allow the user to replace a defective memory cell with a redundant memory cell while the chip is in the field [see Owen's abstract].

Furthermore, Owen also teaches the method to field repair a field-reparable device including performing a diagnostic test on said device [see claim 1], identifying unused redundant rows and columns [see claim 2], electrically programming ["reconfiguration", see claim 1] any of said unused redundant rows and columns.

5. As to claim 22, Official Notice is taken that performing laser blown repair on redundant row and column is well known in the art.

It would have been obvious to one of ordinary skill in the Data Processing art at the time of the invention was made to enhance the teachings of Bair and Owen by performing laser blown repair on redundant row and column. This modification would have been obvious and a person having ordinary skill in the art would have been motivated to do so because it would allow repairing a defective memory cell with a redundant memory cell.

6. As to claim 25, Owen teaches usage of marking any used redundant rows and column during electrically programming [claim 3].

Allowable Subject Matter

7. Claims 1-20 are allowed.

8. Claims 23 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Ton, whose telephone number is (703) 306-3043. The examiner can normally be reached on Monday through Thursday from 6:30 AM to 4:00 PM and alternate Friday from 6:30 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady, can be reached at (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DAVID TON
PRIMARY EXAMINER

DT

June 01, 2004